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Status and Trends of Physical Activity Surveillance, Policy, and Research in 164 Countries: Findings From the Global Observatory for Physical Activity—GoPA! 2015 and 2020 Surveys

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Background: Physical activity (PA) surveillance, policy, and research efforts need to be periodically appraised to gain insight into national and global capacities for PA promotion. The aim of this paper was to assess the status and trends in PA surveillance, policy, and research in 164 countries. ***Methods:*** We used data from the Global Observatory for Physical Activity (GoPA!) 2015 and 2020 surveys. Comprehensive searches were performed for each country to determine the level of development of their PA surveillance, policy, and research, and the findings were verified by the GoPA! Country Contacts. Trends were analyzed based on the data available for both survey years. ***Results:*** The global 5-year progress in all 3 indicators was modest, with most countries either improving or staying at the same level. PA surveillance, policy, and research improved or remained at a high level in 48.1%, 40.6%,

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and ORCID links can be found in the Appendix to the article.

and 42.1% of the countries, respectively. PA surveillance, policy, and research scores decreased or remained at a low level in 8.3%, 15.8%, and 28.6% of the countries, respectively. The highest capacity for PA promotion was found in Europe, the lowest in Africa and low- and lower-middle-income countries. Although a large percentage of the world's population benefit from at least some PA policy, surveillance, and research efforts in their countries, 49.6 million people are without PA surveillance, 629.4 million people are without PA policy, and 108.7 million live in countries without any PA research output. A total of 6.3 billion people or 88.2% of the world's population live in countries where PA promotion capacity should be significantly improved. **Conclusion**: Despite PA is essential for health, there are large inequalities between countries and world regions in their capacity to promote PA. Coordinated efforts are needed to reduce the inequalities and improve the global capacity for PA promotion.

Keywords: epidemiology, guidelines and recommendations, health promotion, measurement, public health practice

Before the 2019 SARS-CoV-2 (COVID-19) pandemic, it was estimated that approximately 1 in 4 adults did not meet the World Health Organization's (WHO) recommendations for physical activity (PA).[1] This has been widely recognized as a global health problem, primarily due to the increased risks of cardiovascular disease, several types of cancer, type 2 diabetes, and a range of other chronic diseases associated with insufficient PA.[2,3] Growing evidence from 2020 and 2021 has shown that the COVID-19 pandemic has had a detrimental impact on PA levels globally[4,5] further exacerbating what was already a major public health issue.[5–8]

To tackle this problem, it is important for countries to have national policies that support a physically active lifestyle. PA research and surveillance are needed to ensure that such policies are effective and based on empirical evidence. PA surveillance, policy, and research can therefore be considered as 3 pillars underpinning PA promotion.[9]

The Global Observatory for Physical Activity (GoPA!)[10] was established in 2012 as an independent evidence- and expert-based surveillance system to monitor and evaluate national PA surveillance, policy, and research worldwide. As such, GoPA! facilitates evidence-based PA promotion and supports global and national PA advocacy (http://www.globalphysicalactivity observatory.com/). In 2015 GoPA! published its first report on worldwide PA surveillance, policy, and research, producing PA profiles (the Country Cards) for 139 countries.[11,12] The report identified a wide range of gaps and differences in PA surveillance, policy, and research across countries, world regions, and income groups. It was estimated that one-third of the countries had periodic surveillance, one-quarter had standalone PA policies, and two-thirds had PA research outputs, thus consolidating the urgent case for periodic monitoring of these indicators.[11]

The second GoPA! data collection was conducted from 2019 to 2020 (referred to as "GoPA! 2020 survey"), to enable evaluation of national and global changes in the capacity for PA promotion.[9] Such evaluation was needed to support global PA leadership and advocacy and to improve national capacities for PA promotion. The aim of this paper was to assess the trends in PA surveillance, policy, and research globally, based on data from the GoPA! 2015 and 2020 surveys.

Methods

Identification of Country Contacts

GoPA! country representatives, also known as "Country Contacts", were invited to participate in GoPA!. Through their work and experience as PA researchers, policymakers, and practitioners, most Country Contacts represent academic and government sectors in the areas of PA and/or noncommunicable disease (NCD) prevention. An active search for new members is ongoing for the countries without a representative. Description of identification methods and complete list of Country Contacts can be found elsewhere.[9,11]

Collection and Processing of Country-Specific Data

Sample of Countries. Consistent with the protocol and standardized methodology established before the GoPA! 2015 survey,[11,12] we collected data for 217 world countries/states/economies (hereafter referred to as "countries"). A full list of countries can be found elsewhere.[9] The same protocol was used in the GoPA! 2020 survey to ensure comparability of results between countries and over time.[11] Only countries that had their data approved by Country Contacts were included in the analysis of this paper.

For some of the analyses, countries were grouped into 6 WHO regions, including Africa (AFRO), Eastern Mediterranean (EMRO), Europe (EURO), The Americas (PAHO), South-East Asia (SEARO), and Western Pacific (WPRO).[13] Countries were also grouped by their gross national income per capita into High Income (HIC), Upper Middle Income (UMIC), Lower Middle Income (LMIC), and Low Income (LIC), according to the 2020 World Bank's classification.[14] Information on total population and Gini inequality index was obtained from the World Bank[14] and Our World in Data[15] websites.

PA Surveillance. The GoPA! working group conducted comprehensive, systematic searches to identify national PA surveys and surveillance systems. The search for the GoPA! 2015 survey was conducted from July 2014 to September 2014, while the search for the GoPA! 2020 survey was conducted from April 2019 to August 2019. There were no language restrictions, and the team members doing the searches were fluent in English, Spanish, and Portuguese. Documents in these languages were thus included if they were relevant to the search topic. The searches included the following sources: (1) Demographic and Health Surveys (DHS) Program[16]; (2) the WHO STEPwise Approach to NCD Risk Factor Surveillance (STEPS) Report[17]; (3) Google using "national survey", "physical activity", and a country name as search terms; (4) Google using "Non-communicable disease", "NCD", "risk factors", and "national survey" as search terms; (5) Google using a country name, "national survey", and "NCD" as search terms; (6) the World Health Survey (WHS)[18]; and (7) information sourced from Guthold et al[1] at the WHO (only in the GoPA! 2020 survey).

PA Policy. The GoPA! working group conducted comprehensive systematized searches through WHO MiNDbank, Google, and PubMed using "physical activity", "national policy", and "national plan" as search terms to identify national PA plans and other PA-related policies. The search for the GoPA! 2015 survey was conducted from July 2014 to September 2014, while the search for the GoPA! 2020 survey was conducted from April to August 2019. There were no language restrictions, and the team members conducting the searches were fluent in English, Spanish, and Portuguese. Documents in these languages were thus included if they were relevant to the search topic. In addition, before the 2020 survey, the GoPA! working group developed the GoPA! Policy

Inventory (version 3.0), to collect more detailed information on national PA policies directly from the Country Contacts. The development and data collection methods of the GoPA! Policy Inventory are described elsewhere.[19]

PA Research. The GoPA! working group conducted a systematic review of peer-reviewed articles to assess the quantity of PA research that was conducted using country-specific data and published between 1950 and 2019. The review was performed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and registered in the PROSPERO database (ref: CRD42017070153). The searches were conducted from August 2017 to May 2020 in PubMed, Scopus, and Web of Science databases. Details about the literature search can be found elsewhere.[9,10,12,20]

The population-adjusted contribution to worldwide PA research was estimated for each country using the following formula: $\frac{(country's\ articles)/(country's\ population)}{(worldwide\ total\ articles)/(worwide\ population)}$. To be considered as part of the country's research output, the article had to explicitly show that the research was conducted in the country or included local data. A score above 1 indicates a contribution to worldwide PA research above the global average and a score below 1 indicates a contribution below the global average. For each country, the score was estimated for the 2010–2014 and 2015–2019 periods.

Data Assessment and Approval

The GoPA! data collected through literature searches were reviewed and verified in 2015 and 2020 by representatives for 139 and 164 countries, respectively. Country Contacts could complement the information found in the literature searches with documents in the country's native language. For the purpose of comparisons between the first and second surveys we used the data from 133 countries for which country contacts verified data in both surveys.

Scoring System

The GoPA! conceptual model for quantifying country-level capacity for PA promotion (ie, an aggregate of data on surveillance, policy, and research for PA) was used to assign a rating for each country.[21] The scoring protocol and variable definitions are described in Table 1. Country Contacts revised and approved the country data, and the core research team scored and analyzed it based on the standardized scoring system presented in Table 1. More details on development of the country capacity categorization for PA promotion can be found elsewhere.[21]

Data Analysis

Descriptive analyses of surveillance, policy, and research indicators were conducted for all countries in the sample and stratified by world region and income group. PA surveillance, policy, and research progress were determined based on comparisons between the first and second surveys (Table 1). The statistical analyses were conducted in STATA (version 17.0, StataCorp) and the graphs were conducted in R (version 4.1.3, R Foundation for Statistical Computing).

Results

Global Coverage

A total of 139 countries had representatives in the GoPA! 2015 survey (covering 64.1% of the countries and 84.0% of the world's population), and 164 countries had representatives in the GoPA! 2020 survey (covering 75.6% of the countries and 98.8% of the world's population). The number of countries with representatives in GoPA! surveys increased by 18.0% from 2015 to 2020. Of the 164 countries in 2020, 133 were also represented in 2015, while 6 countries (Bahrain, Bulgaria, Greenland, Maldives, Swaziland, and Tunisia) lost their representation (due to staff turnover of dedicated country contacts in most cases), and representatives from 31 new

Table 1   Assessment of Country Progress in Physical Activity Surveillance, Policy, and Research Capacity

Categories' designation	National physical activity surveillance	National physical activity policy	Population-adjusted physical activity research contribution
Green: Improved or stayed at the highest level of the indicator	Green: Periodic physical activity surveillance (first, most recent, and next surveys were determined from the 2015 and 2020 GoPA! surveys) OR an increase in the number of surveys identified in the 2020 GoPA! survey	Green: Standalone physical activity policies in the 2015 and 2020 GoPA! surveys OR transition to a standalone policy in the 2020 GoPA! survey	Green: Physical activity research was above the global average in both 2010–2014 AND 2015–2019 periods
Yellow: Stayed at the same level of the indicator	Yellow: First and most recent surveys were determined, but not a plan for a next or future survey including physical activity	Yellow: NCD plans including physical activity in the 2015 and 2020 GoPA! surveys OR a standalone physical activity policy in the 2015 but not in the 2020 GoPA! survey	Yellow: Physical activity research was above the global average in 2010–2014 OR 2015–2019 periods
Red: Decreased or stayed at the lowest level of the indicator	Red: Only a first survey was determined from the 2015 and 2020 GoPA! surveys (not a most recent or next/future survey) OR there was no surveillance data for the 2020 GoPA! survey	Red: NCD plans including physical activity in the 2015 OR 2020 GoPA! survey (but not both)	Red: Physical activity research was below the global average in both 2010–2014 AND 2015–2019 periods
Black: No data available for the indicator	Black: No physical activity surveillance data	Black: No physical activity policy data	Black: No physical activity research articles

Abbreviation: GoPA!, Global Observatory for Physical Activity; NCD, noncommunicable disease.
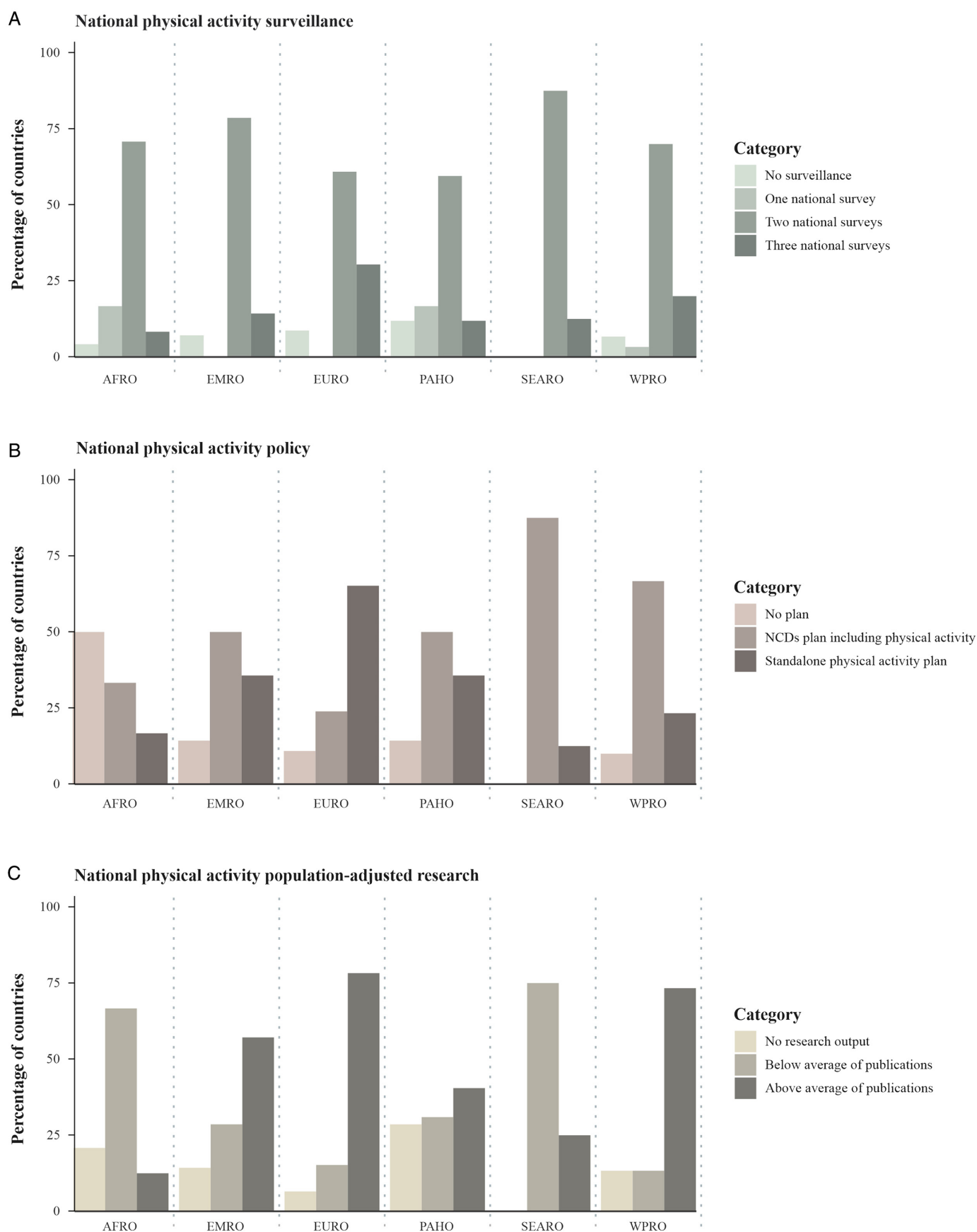
Figure 1 — Physical activity surveillance, policy, and research characteristics by world region based on the 2020 GoPA! survey. AFRO indicates Africa; EMRO, Eastern Mediterranean; EURO, Europe; GoPA!, Global Observatory for Physical Activity; NCD, noncommunicable disease; PAHO, The Americas; SEARO, South-East Asia; WPRO, Western Pacific.
Note: The lighter-colored bars show the indicators' lowest level (ie, surveillance: no surveillance, policy: no plan, population-adjusted research: no research output). The darker-colored bars show the indicators' highest level (ie, surveillance: 3 national surveys, policy: standalone physical activity plan, research: above average of publications). For the most accurate interpretation of this graph (full range of color) please refer to the electronic version of the manuscript.

countries from Eastern Europe and the Caribbean and Pacific Islands contributed to the survey in 2020. In the GoPA! 2020 survey, 48 countries (29.3% of the GoPA! countries) had more than one Country Contact. The number of countries with more than one GoPA! representative has increased since 2015.

The survey participation increased from 2015 to 2020 across all income groups and most world regions except SEARO as follows: HICs (+3.3%), UMICs (+13.0%), LMICs (+20.0%), and LICs (+8.0%), AFRO (+21.3%), EMRO (+9.1%), EURO (+8.1%), PAHO (+18.2%), SEARO (−9.1%), and WPRO (+3.3%).

In both GoPA! surveys, a higher participation rate was associated with higher country income groups. Only 34.5% of LICs participated in GoPA! 2020 survey compared with 85.4% of HICs. The second set of GoPA! Country Cards including 164 countries can be found in the "second Physical Activity Almanac",[9] available at the GoPA! website (http://www.globalphysicalactivity observatory.com/).

Status of Global PA

The GoPA! 2020 survey found that 92.1% of countries conducted at least one national survey on PA, 66.5% of countries at least 2 surveys, while only 18.3% of countries had 3 or more surveys and a plan for a future survey. The percentage of countries with periodic PA surveillance varied by region and income group, from 30.4% in EURO to 8.3% in AFRO region (Figure 1), and from 27.1% in HICs to 0.0% in LICs (Figure 2).

The percentage of countries with PA policies also varied by world region (Figure 1). We found that 37.8% of the countries had a standalone PA policy, 45.1% had a PA policy embedded in their NCD prevention plan, and 17.1% did not have a PA policy. The highest percentage of countries with a standalone policy was in the EURO region (65.2%), followed by the PAHO and EMRO regions (35.7% in each). In terms of the income groups, 91.4% of HICs and only 10.0% of LICs had a PA policy, either standalone or included in an NCD policy (Figure 2). This constitutes almost a 10-fold difference between HICs and LICs in the prevalence of PA policies.

Furthermore, for 15.9% of countries, we found no PA research output. In the EURO and WPRO regions, 78.3% and 73.3% of countries, respectively, had above average contributions to the global research output. For 3 quarters of countries in the SEARO region, the contribution was below the global average. The AFRO region had the second highest (after SEARO) percentage of countries with "low" research productivity. In most HICs and UMICs, research contribution was above the global average and in most LMICs and LICs, the contribution was below the global average.

The overall capacity for PA promotion varied greatly across world regions and income groups. The highest overall capacity was found for the EURO region (all 3 indicators at the highest level), followed by the WPRO region (2 indicators at the highest level and 1 indicator at the middle level), and PAHO (2 indicators at the highest level and 1 indicator at the lowest level). The lowest overall capacity for PA promotion was found for the AFRO region, with 1 indicator at the middle level and 2 indicators at the lowest level (Figure 3).

When translated into population estimates, the data suggest that 2.7 billion people (37.1%) lived in a country with periodic PA surveillance, 4.5 billion people (62.3%) in a country with at least 2 surveys, and 49.6 million people (0.7%) in a country with no surveys (Figure 4). In addition, 3.4 billion people (47.5%) lived in a country with a standalone PA policy, 3.1 billion people (43.7%) with PA included in an NCD prevention policy, and 629.4 million people (8.8%) in a country without a policy (Figure 4). For

research, it was estimated that 1.7 billion people (24.1%) lived in a country with PA research productivity above the global average, 5.3 billion people (74.4%) with a productivity below the global average, and 108.7 million people (1.5%) without any PA research output (Figure 4).

Trends in Global PA Based on the First and Second GoPA! Surveys

PA Surveillance. The comparison of PA indicators included 133 countries. In regard to national PA surveillance, the majority of countries improved or remained at the same level (Figure 5). The WPRO region had the highest share of countries (69.0%) where the indicator improved or stayed at the highest level, compared with the AFRO region where 15.4% of countries stayed (ie, have never had periodic surveillance) or decreased to the lowest level of the indicator (ie, previously reported any kind of surveillance but in the 2020 survey did not report current surveillance efforts or future plans). A decreased capacity was reported in 5.0%, 3.4%, and 2.6% of the EURO, WPRO, and PAHO countries, respectively (data not shown in tables).

In terms of income groups, an equal or increased surveillance capacity was found for 49.2% of the HICs, 50.0% of UMICs, 40.7% of LMICs, and 60.0% of LICs. Twenty percent of the LICs decreased their score or stayed at the lowest level of the indicator (Figure 6).

PA Policy. The comparison of PA policy indicators showed that most countries also improved or remained at the same level (Figure 5). EURO was the region with the highest percentage of countries (71.8%) that improved or stayed at the highest level for this indicator. AFRO was the region with the highest percentage of countries (30.8%) that stayed or decreased to the lowest level for the indicator (ie, did not report the existence of any policy or reported the existence of an NCD plan including PA in only one of the two GoPA! surveys). A decreased capacity was reported in 11.8%, 10.0%, 5.1%, and 3.4% of PAHO, EMRO, EURO, and WPRO countries, respectively (data not shown in tables).

More than half of HICs (60.0%) improved or stayed at the highest level for this indicator, while this was achieved by 38.9% of UMICs, 7.4% LMICs, and none of the LICs. Also, 20.0% of LICs decreased or stayed at the lowest level for this indicator (Figure 6).

PA Research. The comparison of PA research indicators showed that most countries in the EURO and WPRO regions (76.9% and 55.2%, respectively) improved or stayed at the highest level of the indicator, whereas 75.0% of countries in the SEARO region and 69.0% of countries in the AFRO region decreased or remained at the lowest level (Figure 5). The population-adjusted research productivity improved or stayed the same in 72.3% of HICs, 19.4% of UMICs, and 7.4% of LMICs. The population-adjusted research productivity in all LICs decreased or stayed at the lowest level for this indicator (ie, a contribution to worldwide PA research below the global average) (Figure 6).

When analyzing the changes in all 3 indicators collectively, 38.5%, 10.3%, and 5.9% of countries in the EURO, WPRO, and PAHO regions, respectively, improved or stayed at the highest level for all 3 indicators. In the SEARO and EMRO regions, 25.0% and 10.0% of the countries stayed at the same level for all 3 indicators, respectively. Twenty-three percent of countries in the AFRO region decreased or stayed at the lowest level for all 3 indicators (data not shown in tables).
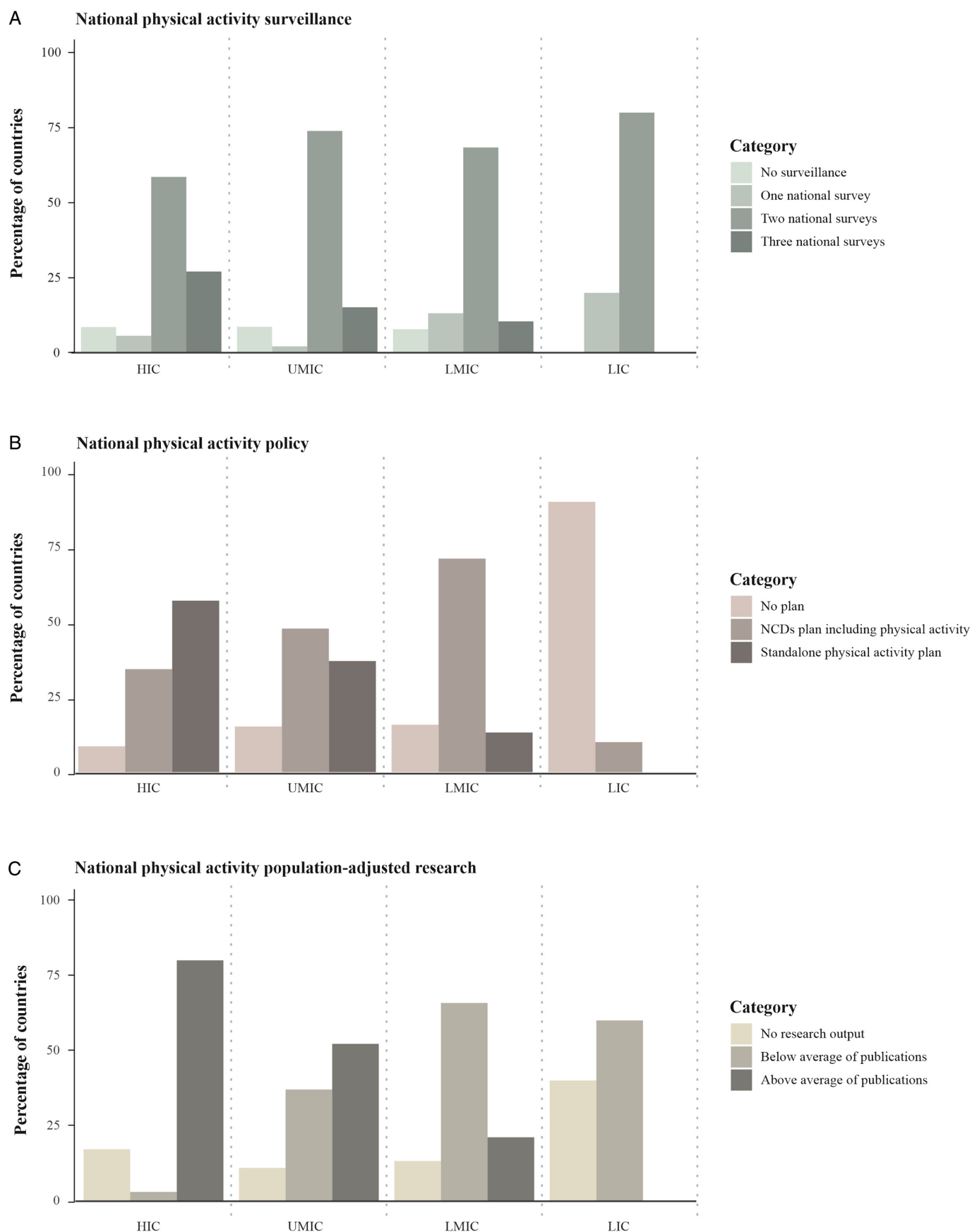
Figure 2 — Physical activity surveillance, policy, and research characteristics by income group based on the 2020 GoPA! survey. GoPA! indicates Global Observatory for Physical Activity; HIC, high-income country; LIC, low-income country; LMIC, lower-middle-income country; NCD, noncommunicable disease; UMIC, upper-middle-income country.

Note: The lighter-colored bars show the indicators' lowest level (ie, surveillance: no surveillance, policy: no plan, population-adjusted research: no research output). The darker-colored bars show the indicators' highest level (ie, surveillance: 3 national surveys, policy: standalone physical activity plan, research: above average of publications). For the most accurate interpretation of this graph (full range of color) please refer to the electronic version of the manuscript.
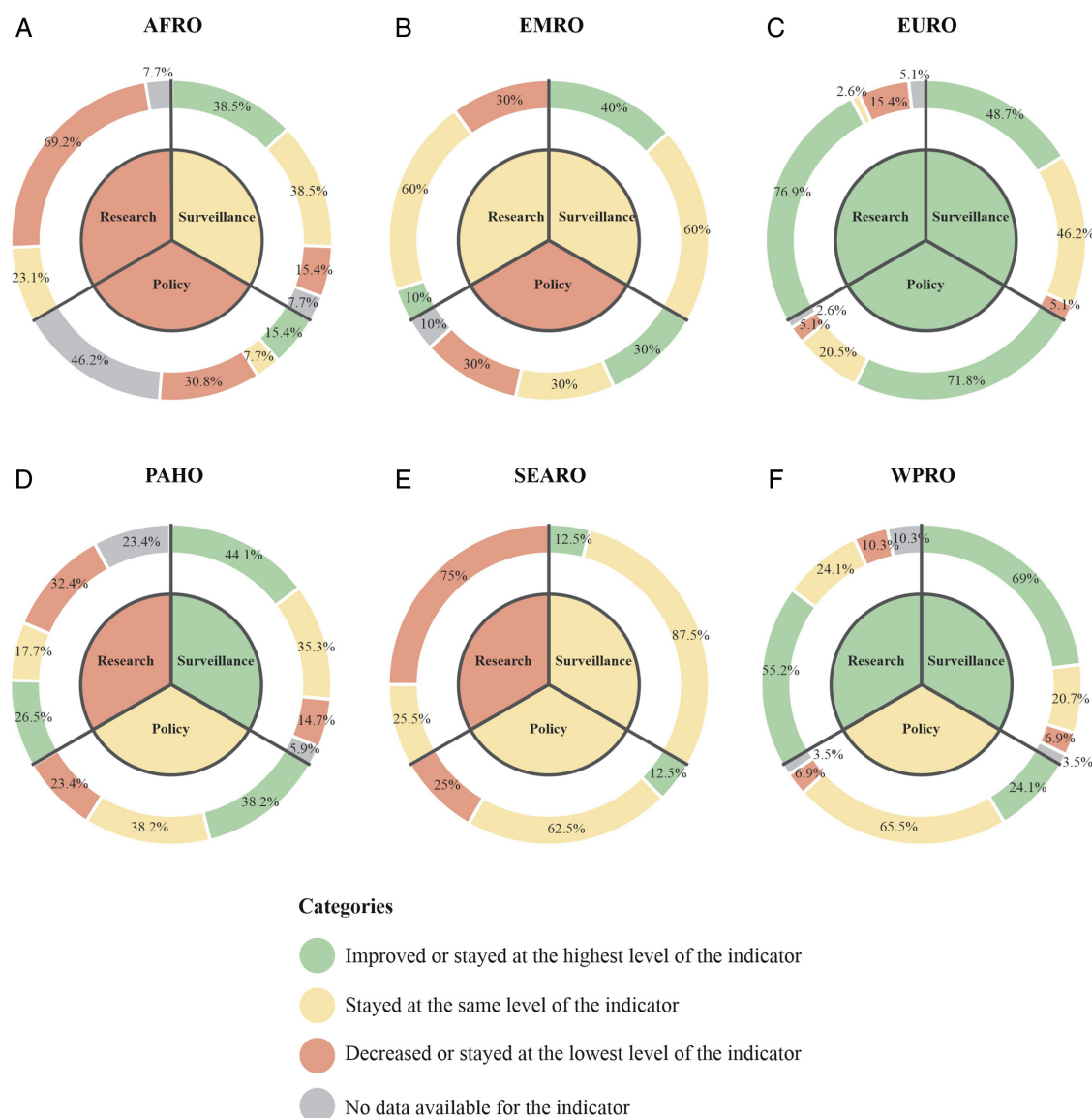
**Figure 3** — Estimated number of countries with low, medium, and high capacity for physical activity promotion. AFRO indicates Africa; EMRO, Eastern Mediterranean; EURO, Europe; PAHO, The Americas; SEARO, South-East Asia; WPRO, Western Pacific.
Note: The levels of the indicators, from lightest to darkest, are: Stayed at the same level of the indicator (light color), Improved or stayed at the highest level of the indicator, No data available for the indicator, and Decreased or stayed at the lowest level of the indicator (dark color). For the most accurate interpretation of this graph (full range of color) please refer to the electronic version of the manuscript.

Discussion

The key findings on the status and progress in PA surveillance, policy, and research based on data from the GoPA! 2015 and 2020 surveys are as follows: First, the overall capacity for PA promotion varied greatly across countries, world regions, and income groups. The highest capacity was found for EURO, followed by WPRO and PAHO regions, and the lowest was found for the AFRO region and LICs and LMICs. This translated to an estimated 145 million people or 2.0% of the world's population living in countries with a low capacity for or no data on PA promotion. Second, although most countries benefit from some kind of PA surveillance, policy, and research, having periodic national PA surveillance, standalone policies, and high research productivity (ie, all of the 3 elements underpinning PA promotion) is very uncommon. In particular, an

estimated 6.3 billion people or 88.2% of the world's population live in countries where the capacity for PA promotion can be significantly improved; 3.1 billion of these people live in LICs and LMICs. Third, almost 70.0% of the world's population (5.0 billion people) live in a country without periodic PA surveillance, 10.0% of the world's population (629.4 million people) live in a country without any PA policy, and at least 75.0% of the population (5.4 billion people) live in a country with PA research productivity below the global average. Fourth, the global 5-year progress in surveillance, policy, and research indicators was modest, with LICs and the AFRO, EMRO, and SEARO regions lagging even further behind.

Many individuals live in countries that do not have adequate PA surveillance, policy, and research for facilitating PA promotion.[23–25] PA is often incorrectly considered to be an individual rather than collective responsibility,[26] while, in fact, political,
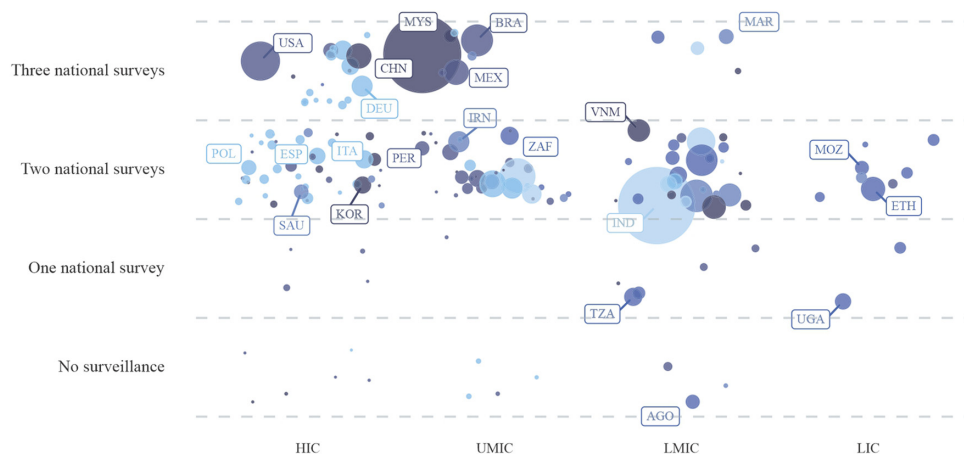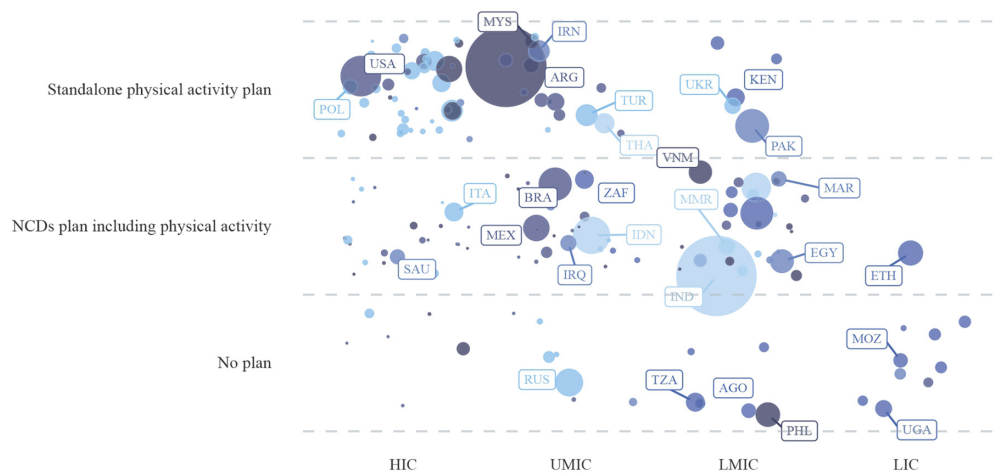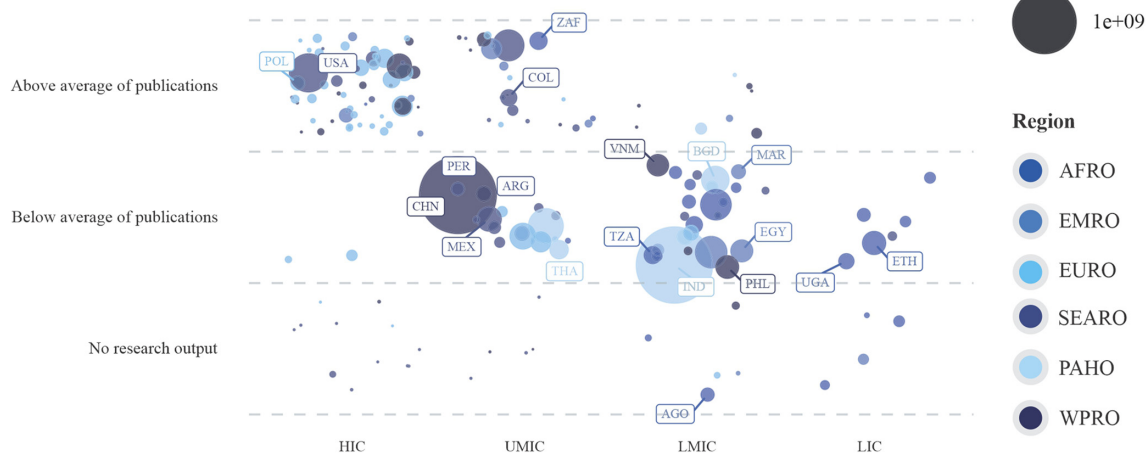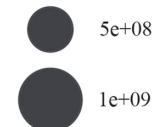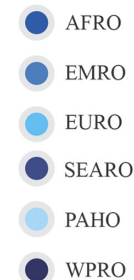
Figure 4 — Global physical activity surveillance, policy, and research: GoPA! categories by country population, income, and region.
Note: Random noise was added to minimize countries' overplotting according to H. Wickham[22] with the countries maintaining their position based on the indicator and income group. For example, POL and ITA both have 2 national surveys (upper left) and are high-income countries; the random noise prevents them from overlapping but keeps them in their respective positions inside the cell, as determined by the indicator and their respective income group classification. AFRO indicates Africa; ARG, Argentina; BGD, Bangladesh; BRA, Brazil; CHN, China; COL, Colombia; EGY, Egypt, Arab Rep.; EMRO, Eastern Mediterranean; ESP, Spain; EURO, Europe; ETH, Ethiopia; DEU, Germany; GoPA!, Global Observatory for Physical Activity; HIC, high-income country; IND, India; IDN, Indonesia; IRN, Iran, Islamic Rep.; IRQ, Iraq; ITA, Italy; KEN, Kenya; KOR, Korea, Rep.; LIC, low-income country; LMIC, lower-middle-income country; MYS, Malaysia; MEX, Mexico; MAR, Morocco; MOZ, Mozambique; MMR, Myanmar; PAHO, The Americas; PAK, Pakistan; PER, Peru; PHL, Philippines; POL, Poland; RUS, Russian Federation; SEARO, South-East Asia; SAU, Saudi Arabia; TZA, Tanzania; THA, Thailand; TUR, Turkey; UGA, Uganda; UKR, Ukraine; UMIC, upper-middle-income country; USA, United States; VNM, Vietnam; WPRO, Western Pacific; ZAF, South Africa. Note: The regions from lightest to darkest on the color scale are: PAHO, EURO, EMRO, AFRO, SEARO, and WPRO. For the most accurate interpretation of this graph (full range of color) please refer to the electronic version of the manuscript.
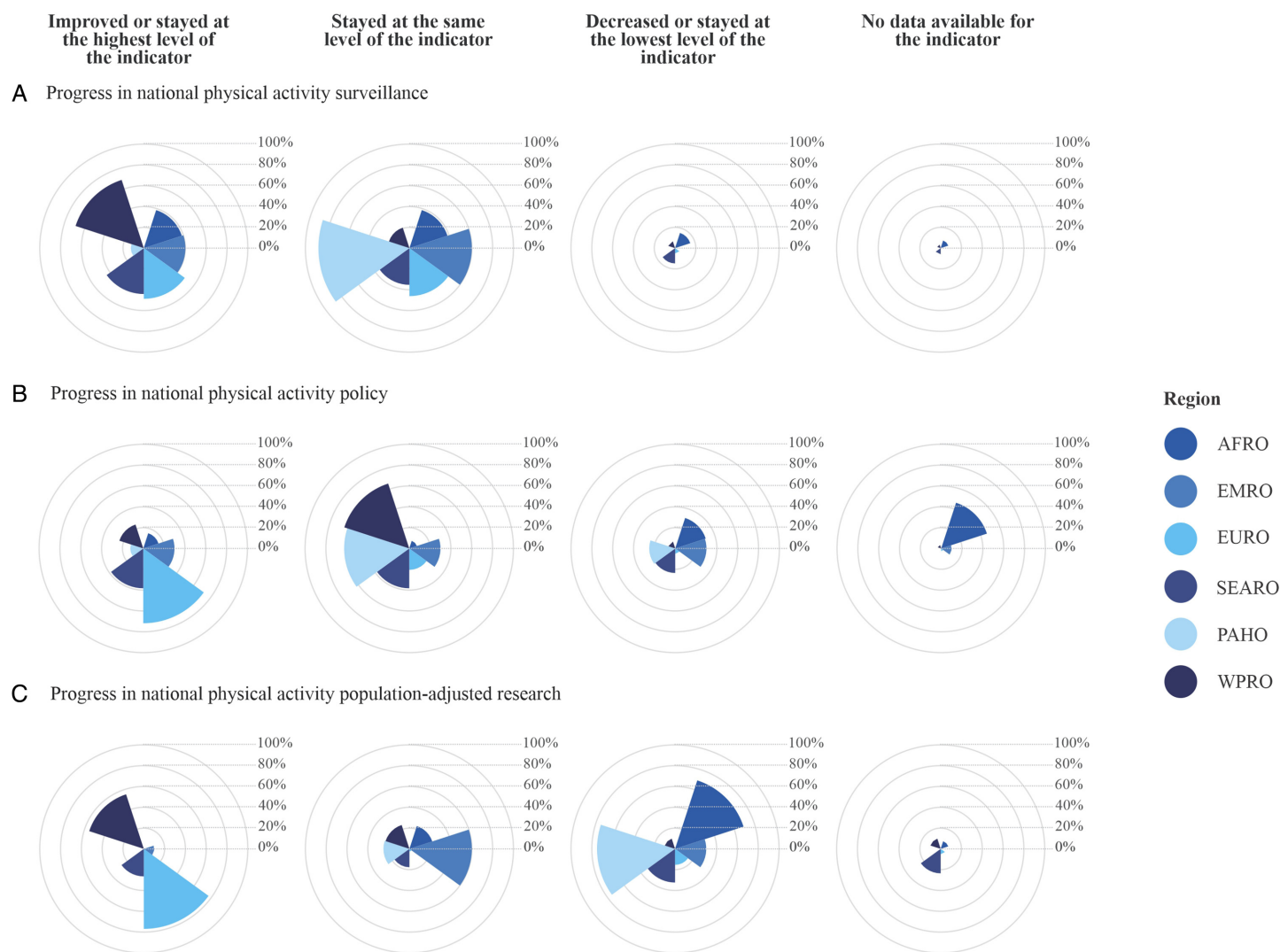
| Improved or stayed at the highest level of the indicator | Stayed at the same level of the indicator | Decreased or stayed at the lowest level of the indicator | No data available for the indicator |

A   Progress in national physical activity surveillance

B   Progress in national physical activity policy

Region

AFRO

EMRO

EURO

SEARO

PAHO

WPRO

C   Progress in national physical activity population-adjusted research

Figure 5 — Progress in national physical activity surveillance, policy, and research by world region.
Note: The reference period was 2015–2020 for surveillance and policy and 2010–2019 for research. The inner circles in each radial plot accumulate a percentage, thus the first inner circle represents 20.0% and the last inner circle represents 100.0%. Each region is represented by a color, for example, the first radial plot (top left) shows that 69.0% of countries in the WPRO region (dark blue) improved or stayed at the highest surveillance level. AFRO indicates Africa; EMRO, Eastern Mediterranean; EURO, Europe; PAHO, The Americas; SEARO, South-East Asia; WPRO, Western Pacific.
Note: The regions from lightest to darkest on the color scale are: PAHO, EURO, EMRO, AFRO, SEARO, and WPRO. For the most accurate interpretation of this graph (full range of color) please refer to the electronic version of the manuscript.

social, economic, and built environments play key roles in shaping population PA behavior.[27–32] Putting the "blame" on individuals while failing to prioritize PA in national public health agendas is malpractice and may explain why the global prevalence of PA has not improved in the last decades.[1,33,34]

According to our study, most countries do not have periodic PA surveillance. This finding is in accordance with the new NCD Progress Monitor 2022 report showing that fewer than 20.0% of WHO Member States conducted a STEPS survey or other comprehensive health examination survey every 5 years.[35] This widespread lack of periodic PA surveillance hinders the implementation and evaluation of evidence-based PA policies. Public health initiatives to increase PA need to be clearly prioritized in national policies, and PA surveillance is of utmost importance for assessing the overall effectiveness of these interventions. Improving national surveillance must be a public health priority, to monitor prevalence

and trends and to better inform the development and evaluation of national health policies.

Progress in the development of national PA policies has been slow and unequal. Standalone PA policies are seen more frequently in HICs and in the EURO region, compared with other income groups and world regions. From a health equity perspective and in accordance with the United Nations' declaration on the prevention of NCDs,[36] LMICs and LICs countries should be supported in their efforts to increase funding, implement surveillance systems[25] that are consistent and sustainable, improve research and public health capacity, governance and political will related to PA promotion. Whole-of-government and systems approaches that facilitate physically active lifestyles are also needed[37,38] as recommended in the WHO Global Action Plan for Physical Activity[39,40] and GoPA!-like policy monitoring initiatives such as the NCD Country Capacity Survey from the WHO
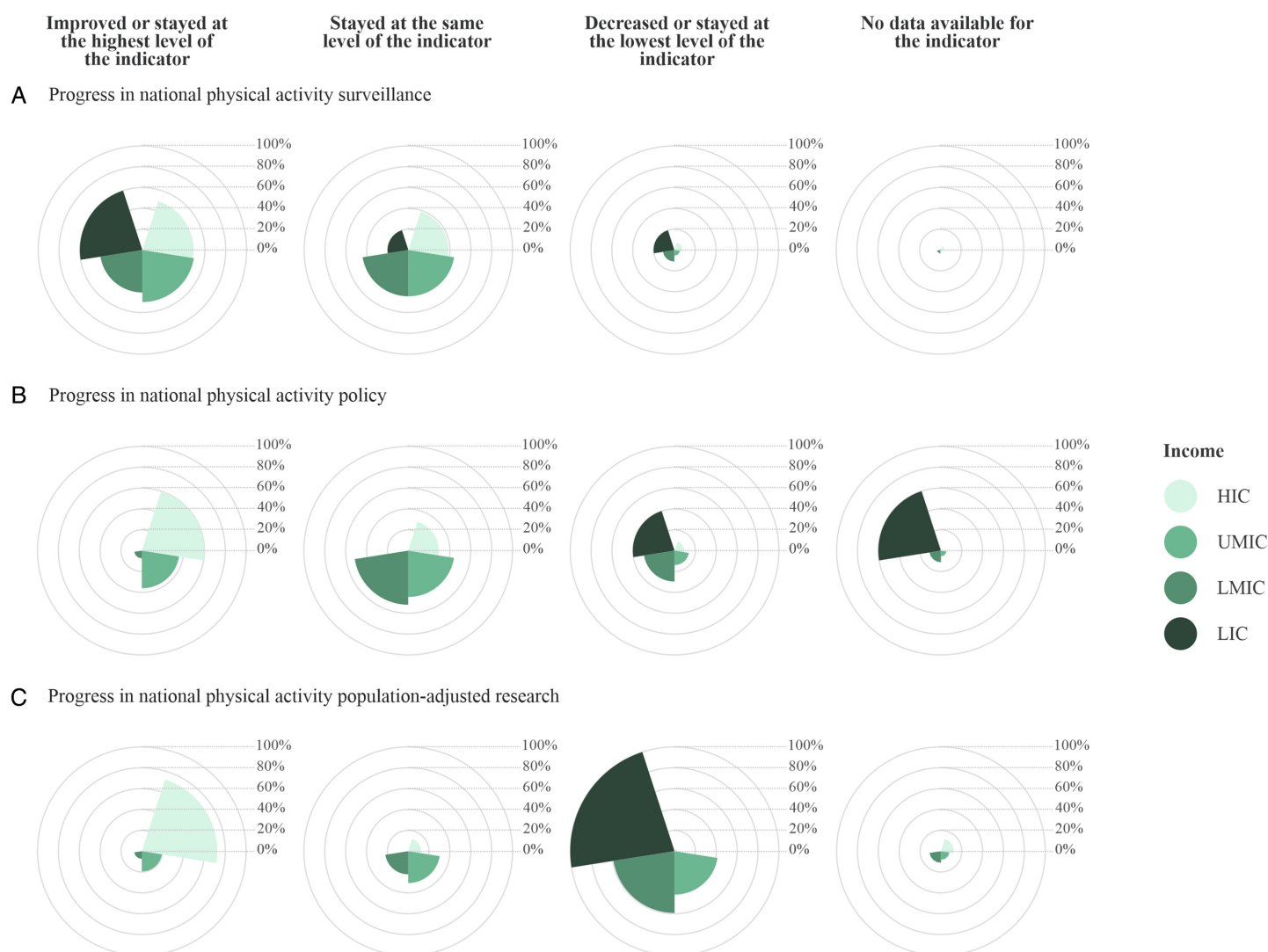
Figure 6 — Progress in national physical activity surveillance, policy, and research by income group.
Note: The reference period was 2015–2020 for surveillance and policy and 2010–2019 for research. The inner circles in each radial plot accumulate a percentage, thus the first inner circle represents 20.0% and the last inner circle represents 100.0%. Each income group is represented by a color, for example, the first radial plot (top left) shows that 60.0% of the LICs (dark green) improved or stayed at the highest surveillance level. HIC indicates high-income country; LIC, low-income country; LMIC, lower-middle-income country; UMIC, upper-middle-income country.
Note: The income groups from lightest to darkest on the color scale are: HIC, UMIC, LMIC, and LIC. For the most accurate interpretation of this graph (full range of color) please refer to the electronic version of the manuscript.

Global Health Observatory,[41] and the Health-Enhancing Physical Activity (HEPA) monitoring framework for the European Union.[42] These approaches may help countries tackle the rising burden of NCDs[25] and build healthier and more resilient populations in the context of the current challenges of pandemics and climate change.[43]

Even though LMICs are home to more than 80.0% of the world's population, they collectively conduct less PA research than HICs. More PA research infrastructure is urgently needed in LMICs to inform the development of contextually relevant policies and programs for this major part of the global population.[39] Due to limited resources,[44–46] building research capacity in LMICs is often challenging and requires coordinated efforts at individual, institutional, and national levels,[47,48] and familiarity with the local context and its challenges. The academic community in HICs

should help develop global capacity for PA research by sharing their expertise and resources with researchers from LMICs.

The AFRO region had the lowest capacity for PA promotion and showed limited progress between 2015 and 2020. There are several potential explanations. First, countries in this region remain focused on the prevention and management of prevalent infectious diseases such as malaria, HIV/AIDS, and tuberculosis. Infectious diseases present competing priorities for policymakers considering how to address PA promotion and the dual burden of NCDs and infectious diseases. Second, most countries in sub-Saharan Africa, where NCDs are highly prevalent and have been on the rise over the past 2 decades,[49,50] are LICs or LMICs with limited resources to develop national PA surveillance, policy, and research. Third, despite the previous efforts of the African Physical Activity Network to increase PA capacity in the region,

developing a viable and sustainable workforce remains a challenge for many countries.[51,52]

Strengths and Limitations

The key strengths of this study are: (1) analysis of PA surveillance, policy, and research indicators from two-thirds of the world's countries verified by Country Contacts (local experts); (2) first of its kind evaluation of temporal changes in PA surveillance, policy, and research based on 2 surveys (2015 and 2020) with standardized indicators; (3) a good representation of countries from different world regions and income groups; and (4) the scoring system employed provided a straightforward measure of progress of PA surveillance, policy, and research with meaningful comparisons across world regions and income groups.

However, some limitations of the study must be taken into account while interpreting our findings. First, 53 countries were not included in the current study because they did not have GoPA! Country Contacts. Most of these 53 countries are in the AFRO and EMRO regions, and this lack of data may have affected the evaluation and comparisons between regions. Second, only the availability of reported PA policies was analyzed. It is possible that in some countries PA policies and research production exist within the gray literature or informal documents but were not reported by the Country Contact or were not picked up by the comprehensive searches. Third, other monitoring efforts use different indicators to quantify various elements of PA policy limiting comparability. For example, the HEPA monitoring framework for the European Union[42] and the Active Healthy Kids Global Alliance[53] are limited to the European Union countries and children, respectively. Fourth, GoPA! has yet to conduct case studies to shed light on the country-specific circumstances that contributed to the observed progress on indicators but might not have been captured by the scoring method employed. Finally, we did not assess the quality of PA surveillance, policy, and research. Having systems in place that do not include underrepresented subgroups in the population or that are not implemented with fidelity may not improve the capacity for PA promotion. Although such an analysis would provide additional important insights into the capacity for PA promotion, it was beyond the scope of the current study.

Conclusions

The overall capacity for PA promotion is remarkably unequal across world regions and income groups, and global 5-year progress in PA surveillance, policy, and research was modest. Therefore, the majority of the world's population live in countries where PA promotion capacity should be significantly improved. Most countries do not have periodic surveillance of PA and a standalone PA policy. In nearly every sixth country, no research on PA was conducted from 2010 to 2020. GoPA! will continue to monitor PA surveillance, policy, and research globally and identify strategies to increase the capacity for national PA promotion. GoPA! will also continue to make the case for national PA promotion using multisectoral approaches consistent with the WHO Global Action Plan for Physical Activity.[40] Ensuring healthy, resilient, and active populations and communities worldwide remains a key public health goal.

Acknowledgments

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